THAT WHICH IS CLAIMED IS:

1. A method of controlling an application of selected treatment materials to a selected area of target vegetation by a vehicle, the method comprising:

scanning an optical beam in a predetermined pattern about a vegetation for measuring a plurality of ranges from a sensor operable with a vehicle useful in distributing the selected treatment materials;

measuring range and intensity of reflected beams from the vegetation for a plurality of locations sufficient for determining multiple parameters for the vegetation including a center of the vegetation, vegetation height, vegetation width, and vegetation foliage volume;

measuring a distance traveled for the sensor; and

providing a control signal to the vehicle for distributing the selected treatment materials based on at least one of the parameters.

2. A method according to claim 1, wherein the scanning is provided by a pulsed laser beam emitted from a rotating reflecting surface.

3. A method according to claim 1, wherein determining the center of the vegetation comprises:

representing the vegetation by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area includes a minimum amount of non-return values of the reflected beams when compared to the areas within the grid structure.

4. A method according to claim 1, wherein determining the center of the vegetation comprises:

representing the vegetation by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area represents a closest range to the sensor when compared to the areas within the grid structure.

5. A method according to claim 1, wherein determining the center of the vegetation comprises:

representing the vegetation by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area represents a maximum height measurement of the vegetation when compared to the areas within the grid structure.

6. A method according to claim 1, wherein determining the center of the vegetation comprises:

representing the vegetation by a grid structure having multiple areas; and

determining a first area within the grid structure wherein the first area includes a minimum amount of non-return values of the reflected beams when compared to the areas within the grid structure;

determining a second area within the grid structure wherein the second area represents a closest range to the sensor when compared to the areas within the grid structure;

determining a third area within the grid structure wherein the one area represents a maximum height measurement of the vegetation when compared to the areas within the grid structure; and

combining at least two of the first, second, and third areas for determining the center of the vegetation.

7. A method according to claim 1, further comprising a mapping of multiple vegetations using measured distances between the centers of each vegetation within the multiple vegetations.

8. A method according to claim 7, further comprising a global positioning of the vegetations using a signal from a global positioning device.

9. A method according to claim 1, wherein determining the vegetation foliage volume comprises:

representing the vegetation by a grid structure including multiple grid areas;

assigning each grid area a median intensity value measured from all laser pulses received within the grid area; and

averaging the median intensities over the entire grid structure.

10. A method according to claim 1, further comprising determining foliage density comprising:

representing the vegetation by a grid structure including multiple grid areas forming the grid structure;

assigning each grid area a median intensity value measured from all pulses received within the grid structure; and

providing a ratio of a sum of the median intensities from all grid areas and a sum of all grid areas having received a pulse therein.

11. A method according to claim 10, further comprising modifying the foliage density by a foliage density coefficient empirically determined from physical measurements.

12. A method according to claim 1, wherein determining vegetation height comprises:

measuring a range for a highest laser beam returned for the reflected beams; and

modifying results of the measuring based on a measured shape of the vegetation at an uppermost portion thereof using a percentage change of a maximum height measurement across the canopy of the vegetation.

13. A method according to claim 1, wherein determining vegetation width comprises using range and intensity data for defining edges of a canopy of the vegetation when a gap exists between adjacent vegetations.

14. A method according to claim 1, wherein determining vegetation width comprises determining a center of mass for the vegetation, the height of the vegetation, and the intensity of returned laser pulses to determine a vegetation edge when the vegetation is within a hedgerow.

15. A method according to claim 1, further comprising classifying a vegetation based on at least one of the parameters, wherein the vegetation is classified as being one from a group consisting of a producing vegetation, a juvenile vegetation, and a dead vegetation.

16. A method of classifying a tree, the method comprising:

scanning an optical beam in a predetermined pattern across a tree for measuring a plurality of ranges from a plurality of locations thereabout;

measuring range and intensity of returned optical beams reflected from the tree for the plurality of locations, wherein the returned optical beams are sufficient for determining multiple parameters selected from the group consisting of tree height, tree width, and tree foliage volume;

selecting at least one measured parameter from the group for providing a measured tree description; and

comparing the measured tree description to a predetermined tree description based on the at least one measured parameter for classifying the tree as belonging to a tree group.

17. A method according to claim 16, wherein the tree group includes a producing tree, a juvenile tree, and a dead tree.

18. A method according to claim 16, further determining the center of the tree comprising:

representing the tree by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area includes a minimum amount of non-return values of the reflected beams when compared to the areas within the grid structure.

19. A method according to claim 16, further determining the center of the tree comprising:

representing the tree by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area represents a closest range to the sensor when compared to the areas within the grid structure.

20. A method according to claim 16, further determining the center of the tree comprising:

representing the tree by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area represents a maximum height measurement of the tree when compared to the areas within the grid structure.

21. A method according to claim 16, further determining the center of the tree comprising:

representing the tree by a grid structure having multiple areas;

determining a first area within the grid structure wherein the first area includes a minimum amount of non-return values of the reflected beams when compared to the areas within the grid structure;

determining a second area within the grid structure wherein the second area represents a closest range to the sensor when compared to the areas within the grid structure;

determining a third area within the grid structure wherein the one area represents a maximum height measurement of the tree when compared to the areas within the grid structure; and

combining at least two of the first, second, and third areas for determining the center of the tree.

22. A method according to claim 16, wherein determining the tree foliage volume comprises:

representing the tree by a grid structure including multiple grid areas;

assigning each grid area a median intensity measured from all laser pulses received within the grid area; and

averaging the median intensities over the grid structure.

23. A method according to claim 16, further comprising determining foliage density comprising:

representing the tree by a grid structure including multiple grid areas forming the grid structure;

assigning each grid area a median intensity value measured from all pulses received within the grid structure; and

providing a ratio of a sum of the median intensities from all grid areas and a sum of all grid areas having received a pulse therein.

24. A method according to claim 23, further comprising modifying the foliage density by a foliage density coefficient empirically determined from physical measurements.

25. A method according to claim 16, wherein determining tree height comprises measuring a range for a highest laser beam returned and from a measured shape of the tree at an uppermost portion of the tree.

26. A method according to claim 16, wherein determining tree width comprises using range and intensity data for defining edges of the canopy of the tree when a gap exists between adjacent trees.

27. A method according to claim 16, wherein determining tree width comprises determining a center of mass for the tree, the height of the tree, and the

intensity of returned laser pulses to determine a tree edge when the tree is within a hedgerow.

28. A method of measuring an object for evaluation thereof, the method comprising:

delivering an emitted pulse onto an object;

measuring a return pulse from the object;

recording at least one of an intensity of the return pulse and a range to the object determined by the return pulse;

repeating the recording for a plurality of locations on the object sufficient for providing a description thereof, wherein the description includes a volume of the object, a width of the object, a height of the object, and a center of the object.

29. A method according to claim 28, wherein determining the center of the object comprises:

representing the object by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area includes a minimum amount of non-return values of the reflected beams when compared to the areas within the grid structure.

30. A method according to claim 28, wherein determining the center of the object comprises:

representing the object by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area represents a closest range to the sensor when compared to the areas within the grid structure.

31. A method according to claim 28, wherein determining the center of the object comprises:

representing the object by a grid structure having multiple areas; and

determining one area within the grid structure wherein the one area represents a maximum height measurement of the object when compared to the areas within the grid structure.

32. A system for classifying a tree, the system comprising:

a laser rangefinder for scanning a pulsed laser beam across a tree in a predetermined pattern for measuring a plurality of ranges from a plurality of locations about the tree; and

a computer operable with the laser rangefinder for measuring range and intensity of a laser beam reflected from the tree for the plurality of locations sufficient for determining multiple parameters selected from the group consisting of tree height, tree width, and tree foliage density, the computer combining first preselected, measured parameters from the group for providing a measured tree description and comparing the measured tree description to a preselected tree description for classifying the tree as belonging to a tree group; and

a user interface operable with the computer for providing input and output from a user.

33. A system according to claim 32, further comprising a global positioning device communicating with the computer for providing a global location of the tree.

34. A system according to claim 32, wherein the measured tree group includes a producing tree, a juvenile tree, and a dead tree.